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No.	Mag.	α (1905·0)	δ (1905·0)	
		h m s	° ′	
1	6·0	0 19 8	+51 29·6	—
2	6·1	1 44 52	28·0	—
3	6·6	1 58 0	30·7	—
4	5·4	4 59 14	28·4	Fl. 9 Aurigæ.
5	6·6	5 39 29	29·0	—
6	6·5	5 43 23	29·2	—
7	6·6	7 26 33	31·1	—
8	6·8	10 24 18	28·8	—
9	6·0	13 59 28	25·7	—
10	2·5	17 54 24	30·0	γ Draconis.
11	6·8	18 59 59	29·6	—
12	4·0	19 27 19	31·5	ι Cygni.
13	6·4	20 32 4	31·6	—

On the Velocity of α Persei. By H. F. Newall.

The following additional observations of the velocity of *α Persei* in the line of sight were obtained before I left England to observe the eclipse of the Sun in Sumatra. They are in continuation of the observations published in an earlier note (*Monthly Notices*, vol. lxi., p. 12), and were obtained with the same instrument and measured in the same way as those before published. The values of the velocity are the means of two measurements made, one by myself, the other by my assistant, A. W. Goatcher. The result for each photograph is based on measurement of about eleven lines between λ 4260 and λ 4325, and the method of reduction is the same as that briefly described in a paper published in *Monthly Notices*, vol. lxi., p. 12.

Velocity of α Persei in the Line of Sight.

Plate Number.		Velocity relative to Earth.	Correction for Earth's Orbital velocity.	Velocity relative to Sun.
F. 139	1900 Nov. 9·35	− 2·7	+ 5·8	+3·1
F. 141	10·35	− 4·4	+ 5·4	+1·0
F. 142	13·34	− 3·7	+ 4·1	+0·4
F. 143	15·33	− 4·0	+ 3·2	−0·8
F. 145	16·33	− 6·7	+ 2·7	−4·0
F. 154	Dec. 10·25	+ 7·0	− 8·1	−1·1

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Plate Number.		Velocity relative to Earth.	Correction for Earth's Orbital velocity.	Velocity relative to Sun.
F. 155	13·25	+ 7·3	− 9·4	−2·1
F. 159	17·24	+13·7	−11·0	+2·6
F. 160	19·25	+12·5	−11·9	+0·6
F. 162	21·23	+12·0	−12·7	−0·7
F. 180	1901 Feb. 12·39	+25·9	−25·8	+0·1
F. 181	13·40	+24·5	−25·9	−1·4

These results were very nearly ready for publication in February last, but the appearance of the new star in *Perseus*, and stress in connection with preparations for the eclipse expedition, which started from England on March 11, stood in the way of the necessary completion of the discussion, and to my regret it was left unfinished. Meanwhile, Professor Vogel and Professor Campbell kindly responded with great promptness to the expression that I gave in my previous note to the hope that observations of the star would be secured at other observatories; and I would here express my obligations to them. Their published results (*Sitzber. Berlin Akad.* 1901, p. 51, and *Lick Obs. Bull.* No. 4) show that no support is found either at Potsdam or at the Lick Observatory for my suggestion that the velocity varies periodically.

My later observations given above showed at once that they would not fit either of the periods, 4·2 days or 16·8 days, which I had suggested as possible.

As Professor Vogel has pointed out, I have used a linear dispersion about two and a half times that obtained in the instrument he has used for making his observations at Potsdam; it is about twice as great as that used by Professor Campbell.

While it is clear that the larger dispersion might bring to light changes that were not detected on photographs of smaller scale, it is also evident that the use of it would be attended with greater risks arising from temperature changes, &c. Every precaution has been taken to avoid risks of this kind, short of putting in an arrangement for generating heat inside the non-conducting covering which surrounds the spectroscope. The photographs were obtained with all care and afford apparently excellent material for the measurements to be made. The spectrum of *α Persei* is admirably adapted for an accurate investigation; for the lines are numerous and distinct, and in spite of an exhaustive study of the material I have at present no clue as to the cause of the discrepancies.

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On a Simple Method of Accurate Surveying with an Ordinary Camera. By H. H. Turner, D.Sc., F.R.S., Savilian Professor.

1. Measurements of photographs have proved so accurate and convenient in astronomy that they will probably be found useful elsewhere. The present paper suggests an extension of the methods adopted for treatment of the Astrographic Chart plates to terrestrial surveying; and although not definitely astronomical, since it arises out of astronomical work, it may perhaps not unsuitably be communicated to this Society.

2. *Uses of the camera in surveying hitherto.*—Instruments designed for using the camera in terrestrial surveys have hitherto started with the theodolite as a substructure. Now the theodolite is primarily designed to measure *angles*, and I hope to show in the present paper that the use of angles is unnecessary, and only complicates the formulæ. It is not an angle itself but the tangent of an angle which arises fundamentally in the work, when a view of any kind is projected on a plane; and if we keep to plane geometry with straight lines and linear formulæ, we get much simpler formulæ; just as in astronomical work it simplifies matters to use rectilinear coordinates instead of curvilinear or angular. This has not been realised (so far as I have been able to find out) in surveying any more than it was in astronomy; indeed existing instruments for photographic surveying often contain a "scale of tangents" designed to enable the surveyor to convert the convenient linear measures with which the photograph directly furnishes him into angular measures, which are really more inconvenient but to which he has become accustomed from use of the theodolite.

When the photographs have been obtained methods of making use of them have usually been graphical; and the positions of points have been laid down by the "method of intersections." Now graphical methods are limited by practical considerations, such as size of paper; and though in many cases they may be all that is necessary, it is convenient to have a more complete method. In the present paper it is shown how accurate measurements of the plate can be used, without any troublesome calculations, to give all the required data. Thus we may state the

3. *Advantages of the present method* under two heads: (*a*) the use of linear measures and formulæ entirely, instead of angles, and (*b*) the substitution of accurate measurement of the plate for graphical methods of treating the photographs. Under head (*a*) is to be ranged the considerable practical gain of doing away with any complicated or expensive mounting, and using a camera of the ordinary pattern.

4. *Principle of the method.*—Let A be the centre of a lens forming an image on a plate GE, and let the image of a point